REMARKS

In the Office Action, the Examiner noted that claims 1-16 were pending in the application. The Examiner objected to claims 5-7 and 12-14 and rejected the remaining claims. The Examiner's rejections are traversed below.

REJECTION UNDER 35 U.S.C. § 102(b)

In item 5 on pages 3-4 of the Office Action, the Examiner rejected claims 1-4, 8-11, 15 and 16 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 5, 748,802 to Winkelman. The Winkelman reference is directed to a method and apparatus for the analysis and correction of the image gradation in image originals.

CLAIMS 1-4, 8-11, 15 AND 16 PATENTABLY DISTINGUISH OVER THE PRIOR ART

In the Response to Arguments section on page 2 of the Office Action, the Examiner characterizes the applicants' prior patentability arguments as "Winkelman does not teach or fairly suggest a normalizing function as disclosed in independent claims 1, 8, 15 and 16." The Examiner disagrees with this position and takes the position that "Winkelman discloses a normalizing function normalizing a feature quantity of an image through conducting a range transformation, which allows the feature quantity of the image to be distributed over a whole range." The Examiner relies upon Figs. 2 and 3, and column 8, line 39 to column 9, line 11 of Winkelman to support the Examiner's position.

For the reasons explained below, it is submitted that Winkelman does not have any teaching or suggestion relating to "the range transformation" which is recited in claims 1, 8, 15 and 16.

The present claimed invention seeks to overcome the problem in the prior art wherein the feature quantity of the image to be processed may not be distributed over the whole range. For example, because of an inappropriate white balance, the distribution of the feature quantity of the image might possibly be biased. Therefore, if a mean value and a standard deviation of the feature quantity of the image are extracted from an image which is inappropriately balanced, a biased mean value and a biased standard deviation might occur. Therefore, accurate judgment of the image condition, such as the brightness of the image, cannot be achieved in this circumstance.

The present invention overcomes this problem and allows an accurate judgment of the image condition by providing the feature of normalizing the feature quantity of the image through conducting a range transformation which allows the feature quantity of the image to be distributed over a whole range. This is done prior to extracting the mean value and the standard deviation of the feature quantity of the image.

In contrast to the present invention, the Winkelman reference does not teach or suggest the necessity of performing a range transformation which is conducted so that the feature quantity of the image to be processed is distributed over the whole range. Further, because Winkelman fails to perform normalization of the feature quantity of the image, an accurate image condition may not be judged.

As described above, the Examiner takes the position that the above-described features are disclosed in Figs. 2 and 3 and from column 8, line 39 to column 9, line 11 of Winkelman. However, this portion of Winkelman only explains the conversion of the RGB color model into a CIELAB color model. If the range transformation is conducted to distribute the image feature quantity (R, G, B) over the whole range when the RGB color model is to be converted into the CIELAB color model, color balance of input data of a scanner, a camera and a video shown in Fig. 1 of the Winkelman patent will be broken. Therefore, a feature of an original image (such as a bright image or a dark image) cannot be recreated. In addition, in the relied upon portion of Winkelman, a technique to analyze an image on the identical scale by converting a device-dependent color space RGB into a device-independent color space CIELAB is disclosed. It is submitted that this technique is clearly different from the "range transformation" in accordance with the present invention.

At column 8 lines 39-60, Winkelman discloses a color image processing system that transforms the input color values into a reference color system. The color values X, Y, Z of the reference color system are transformed by mathematically defined transformations into values of device independent communication color space, performing the image analysis and processing. After the image processing, the color space processed values are then transformed into the device specific RGB or CMYK color space of the output device.

From column 8 line 61 to column 9 line 12, Winkelman additionally discloses the use of CIELAB color space. This separates color values into the luminance, red-green chrominance, and yellow-blue chrominance. The values for the luminance range from 100, representing white, to 0, representing absolute black. The values of the red-green and yellow-blue can range

chrominance from –80 through +120. With these values, an overall chrominance value can be calculated.

Winkelman does not disclose a normalizing transformation for normalizing the density of the input image. There is nothing apparent in Winkelman that suggests normalizing the input pixel density before the processing occurs to ensure accurate standard deviation and mean values can be extracted. Additionally, Winkelman does not suggest that the feature quantity or values are distributed over the entire range, as disclosed in the subject specification on page 11, lines 23-27.

In contrast to Winkelman, the present invention is directed to providing an image quality correction to normalize a pixel distribution by range transformation for an input image which can be changed by photographing conditions, image composition, and illumination in a single input device. Therefore, the present invention clearly differs from Winkelman.

It appears that the Examiner has focused on the "transformed" language of Winkelman in column 8, lines 39-60 and the "range" language from column 8 line 61 to column 9 line 12. The claimed normalizing transformation is significantly different than the process disclosed by Winkelman. In particular, Winkelman does not disclose a *normalizing* function that spreads the feature quantity over the *whole range.*

Referring to claim 1, it is submitted that the prior art does not teach or suggest the claimed image processing program which includes:

> a normalizing function normalizing a feature quantity of an image through conducting a range transformation which allows the feature quantity of the image to be distributed over a whole range;

Claims 2-7 depend, directly or indirectly, on claim 1 and include all the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that claims 2-7 patentably distinguish over the prior art.

Claim 8 is directed to a computer-readable recording medium recorded with an image processing program for realizing on a computer:

> normalizing a feature quantity of an image through conducting a range transformation which allows the feature quantity of the image to be distributed over a whole range;

Therefore, it is submitted that claim 8 patentably distinguishes over the prior art.

Claim 9-14 depend, directly or indirectly, from claim 8 and include all the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that claims 9-14 patentably distinguish over the prior art.

Claim 15 is directed to an image processing method which includes:

> normalizing a feature quantity of an image through conducting a range transformation which allows the feature quantity of the image to be distributed over a whole range;

Therefore, it is submitted that claim 15 patentably distinguishes over the prior art.

Claim 16 is directed to an image processing apparatus which includes:

> normalizing means for normalizing a feature quantity of an image through conducting a range transformation which allows the feature quantity of the image to be distributed over a whole range;

Therefore, it is submitted that claim 16 patentably distinguishes over the prior art.

ALLOWABLE SUBJECT MATTER

In item 6 on page 5 of the Office Action, the Examiner indicated that claims 5-7 and 12-14 contain allowable subject matter. However, it is also submitted, as explained above, that claims 5-7 and 12-14 depend from independent claims (claims 1 and 8) which are patentable over the prior art. Therefore, it is submitted that these claims are also patentable over the prior art.

SUMMARY

It is submitted that none of the references, either taken alone or in combination, teach the present claimed invention. Thus, claims 1-16 are deemed to be in a condition suitable for allowance. Reconsideration of the claims and an early notice of allowance are earnestly submitted.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 1-31-06

By: _____
John C. Garvey
Registration No. 28,607

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501